

# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Marius K. Orlowski Group Art Unit:  
 Application No.: Examiner:  
 Date Filed:  
 Title: METHOD FOR FORMING A SEMICONDUCTOR DEVICE HAVING A  
 NOTCHED CONTROL ELECTRODE AND STRUCTURE THEREOF

## INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner For Patents  
 Alexandria, VA 22313

SIR:

In accordance with 37 C.F.R. §1.56 and in compliance with 37 C.F.R. §§1.97 and 1.98, the references listed on attached Form PTO/SB/08 and/or subsequently identified herein, are for consideration by the United States Patent and Trademark Office. Pursuant to the Office waiving the requirement under 37 CFR 1.98 (a)(2)(i) for submitting a copy of each cited U.S. patent and each U.S. patent application publication for all U.S. national patent applications filed after June 30, 2003 and for all international applications that have entered the national stage under 35 USC §371 after June 30, 2003, copies of the reference are not submitted herewith.

### I. COPIES

- a. ☒ A legible copy of (i) each foreign patent; (ii) each publication or that portion which caused it to be listed; and (iii) all other information or that portion which caused it to be listed, is included herewith.
- b. ☐ Any patents, publications or other information which are listed on PTO/SB/08 which are not enclosed herewith were previously cited by or submitted to the PTO in one of the following applications which has been relied upon for an earlier filing date under 35 U.S.C. §120:

U.S. Serial Number

U.S. Filing Date

### II. CONCISE EXPLANATION OF THE RELEVANCE (check at least one box)

- a. ☒ Except as may be indicated below in (b) of this section, all of the patents, publications or other information are in the English language (concise explanation not required).
- b. ☐ A concise explanation of the relevance of all patents, publications or other information listed that is not in the English language is as follows:
- c. ☐ The following additional information is provided for the Examiner's consideration:

### III. ☐ CROSS REFERENCE TO RELATED APPLICATION(S)

The Examiner is advised that the following co-pending application(s) contain(s) subject matter that may be related to the present application. By bringing this (these) applications to the Examiner's attention, Applicant(s) does(do) not waive the confidentiality provisions of 35 U.S.C. §122.

Serial No.

Filing Date

Art Unit

## FEES

### IV. ☒ THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(b): (check one box)

- a. ☒ within three months of the filing date of a national application other than a continued prosecution application under § 1.53(d) (37 C.F.R. §1.97(b)(1)). No fee or statement is required.
- b. ☐ within three months of the date of entry of the national stage as set forth in § 1.491 in an international application (37 C.F.R. §1.97(b)(2)). No fee or statement is required.
- c. ☐ before the mailing date of a first Office Action on the merits (37 C.F.R. §1.97(b)(3)). No fee or statement is required.
- d. ☐ before the mailing date of a first Office Action after the filing of a request for continued examination under § 1.114 (37 C.F.R. § 1.97(b)(4)). No fee or statement is required.

- V. ☐ THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(c): (check one box)  
before the mailing date of any of a Final Office Action under 37 C.F.R. §1.113, a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in the application (See 37 C.F.R. §1.97(c)).
- a. ☐ No statement; therefore, charge deposit account **502117** the fee set forth in 37 C.F.R. §1.17(p).  
b. ☐ See the statement below. No fee is required.
- VI. ☐ THIS IDS IS BEING FILED UNDER 37 C.F.R. §1.97(d):  
on or before payment of the issue fee and is accompanied by the following:  
1) a statement under 37 C.F.R. §1.97(e) as provided below; and  
2) charge deposit account **502117** the petition fee set forth in §1.17(p).
- VII. ☐ STATEMENT UNDER 37 C.F.R. §1.97(e) (check only one box, if applicable)  
The undersigned hereby states that
- a. ☐ each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of IDS; or  
b. ☐ no item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application, and to knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the IDS was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement, or  
c. ☐ some of the items of information contained in the IDS were cited in a communication from a foreign Patent Office. As to this information, the undersigned states that each item of information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this IDS. As to the remaining information, the undersigned hereby states that no item of this remaining information contained in the IDS was cited in a communication from a foreign Patent Office in a counterpart foreign application or, to the knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the IDS was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement.
- VIII. PAYMENT OF FEES
- ☐ A check in the amount of \_\_\_\_\_ is enclosed for the above-identified fee(s).  
☐ Please charge Deposit Account **502117** in the amount of \$180.00 for the above-indicated fee(s).  
☒ If Applicant has overlooked any additional fees, or if any overpayment has been made, the Commissioner is hereby authorized to credit or debit Deposit Account **502117**.  
☐ Two Copies of this paper are attached for Deposit Account charges and debits.

The above references are being cited only in the interests of candor and without any admission that they constitute statutory prior art or contain matter which anticipates the invention or which would render the same obvious, either singly or in a combination, to a person of ordinary skill in the art.

If the Examiner has any questions concerning this IDS, he/she is requested to contact the undersigned. If it is determined that this IDS has been filed under the wrong rule, the PTO is requested to consider this IDS under the proper rule (with a petition if necessary) and charge the appropriate fee to Deposit Account No. **502117**.

Respectfully submitted,  
Marius K. Orlowski

*Kim-Marie Vo*  
Kim-Marie Vo

Agent for Applicant(s)  
Reg. No. 50,714  
Tel. (512) 996-6839

MOTOROLA, INC.  
Customer Number 23125

Enclosures: ☒ PTO/SB/08  
☒ References  
☐ Foreign Search Report  
☐ Other:

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	
				Filing Date	
				First Named Inventor	
				Group Art Unit	
Examiner Name				Marius K. Orłowski	
Sheet	1	of	1	Attorney Docket Number	
SC13240TP					

U. S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number -Kind Code <sup>2</sup> (if known)			
	AA	US -2003/0201505 A1	10-30-2003	KURATA	
	AB	US -6,646,326 B1	11-11-2003	KIM	
	AC	US -6,645,840 B2	11-11-2003	GRIDER	
	AD	US -6,624,483 B2	09-23-2003	KURATA	
	AE	US -5,834,817	11-10-1998	SATOH	
		US -			
		US -			
		US -			

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Country Code <sup>3</sup>	Number <sup>4</sup> Kind Code <sup>2</sup> (if known)			
	AF	PT	WO 00/34984	06-15-2000	CHU	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
	AG	PIDIN et al., "A Notched Metal Gate MOSFET for sub-0.1 $\mu$ m Operation," IEEE, pp. 29.1.1 – 29.1.4 (2000).	
	AH	GHANI et al., "100 nm Gate Length High Performance/Low Power CMOS Transistor Structure," IEEE, IEDM 99-415, pp. 17.1.1 – 17.1.4 (1999).	
	AI	SKOTNICKI et al., "Well-controlled, Selectively Under-Etched Si/SiGe gates for RF and High Performance CMOS," IEEE 2000 SYMPOSIUM ON VLSI TECHNOLOGY DIGEST OF TECHNICAL PAPERS, pp. 156-157.	
	AJ	NAKAI et al., "A 100 nm CMOS Technology with Sidewall Notched 40 nm Transistors and SiC-Capped Cu/VLK Interconnects for High Performance Microprocessor Applications," IEEE 2002 SYMPOSIUM ON VLSI TECHNOLOGY DIGEST OF TECHNICAL PAPERS, pp. 66-67.	
	AK	WU et al., "Notched Sub-100 nm Gate MOSFETs for Analog Applications," IEEE 2001 SOLID-STATE AND INTEGRATED-CIRCUIT TECHNOLOGY PROCEEDINGS, pp. 539-542.	
	AL	PIDIN et al., "Experimental and Simulation Study on Sub-50 nm CMOS Design," 2001 SYMPOSIUM ON VLSI TECHNOLOGY DIGEST OF TECHNICAL PAPERS, pp. 35-36.	

Examiner Signature	Date Considered
--------------------	-----------------

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation, if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English Language Translation is attached.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.